



Video Wall Controller/Splitter

Mar. 2009 / Vol.1

**Ultra High Resolution Video Controller/ Splitter
for Multi-Screen Display Solution**

semiMask™



VWBOX-E122

1 Input with 4 Output (2x2)
Up to 1920 x 1200
High-Resolution Input



VWBOX-E133

1 Input with 9 Outputs (3x3)
Up to 1920 x 1200
High-Resolution Input



VWBOX-122A

1 Input with 4 Output (2x2)
Up to 3840 x 2400
High-Resolution Input



VWBOX-133A

1 Input with 9 Outputs (3x3)
Up to 3840 x 3072 (5:4) & 4080 x 2304 (16:9)
High-Resolution Input



VWBOX-114

1 Input with 4 Output (4x1)
Up to 4096 x 768 High-Resolution Input



www.ieiworld.com

IEI Video Wall Advantages

Connect the IEI VWBOX with the PC or notebook via just one DVI cable, a high-resolution large-screen video wall image is easily displayed. No need for extra PC upgrading or special software support, diverse high-resolution content is easily built up for various video wall applications. The IEI VWBOX tiles a video image onto an array of much smaller and much cheaper LCD panels, providing a cost-effective alternative to high-priced large screens.

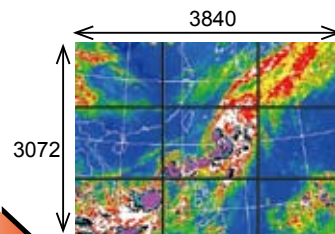
*Traditional PC-Based Video Wall Solution



Large PC with expansion slots



Multiple graphic cards & complex driver support



*New-Generation IEI Video Wall Solution

Choose a cost-effective **Dual-link DVI** graphic card & connect with PC via just 1 **Dual-Link DVI** cable, IEI VWBOX brings a high-resolution large-screen video wall quickly & easily!

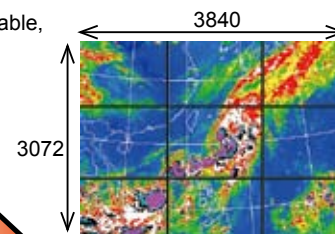


PC & 1 Dual-link DVI graphic card

Connect via only
1 Dual-link DVI



IEI embedded video wall controller



Space-Saving

Better Reliability

Quicker & Easier Installation

Cost-Effective

	Size	Power Consumption	Installation	Expansion
New Generation IEI VWBOX Solution	Small -Embedded box design	Low -Fanless	Easy -Connect PC via 1 DVI cable	Flexible & Easy -Super large video wall by connecting IEI VWBOXs
Traditional PC-based Solution	Large -PC with multiple graphic cards	High -Graphic card processing consumes much power	Complicated -Special drivers & software support	Limited & Expensive - Need PC with a lot of expansion slots

Compatible with Various Type of Displays

IEI video wall controllers can be connected to almost any monitor that supports DVI input. Monitors can be chosen according to budget and application needs.

*Please check before installation if the frequency of your displays are compatible with IEI VWBOXs.



LCD Monitor



HD Plasma Display



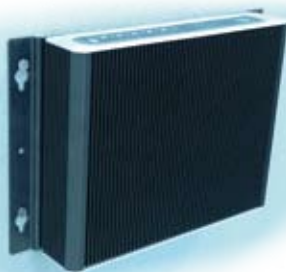
DLP



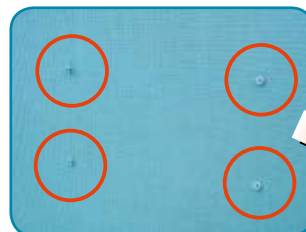
Projector

Quick Wall Mounting Advantage

The VWBOX series have four mounting holes on the rear panel for wall mounting requirement. The optional mounting kits allow quick and convenient wall mounting methods of IEI VWBOX series.



IEI VWBOX Wall Mount Kit





IEI VWBOX Matrix & System Architecture

Full HD Resolution

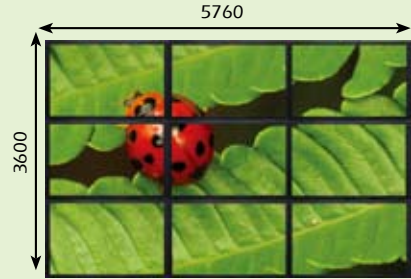
VWBOX-E122

- 1 input with 4 outputs (2x2)
- Input: Max. 1920 x 1200
- Output: Scale to max. 3840 x 2400



VWBOX-E133

- 1 input with 9 outputs (3x3)
- Input: Max. 1920 x 1200
- Output: Scale to max. 5760 x 3600



Full HD Input Content Support
(Input Up to 1920 x 1200)



- Digital Signage
- Blue Ray DVD Player
- PC

Freely Acceptable Output Resolution:
2048 x 1536, 2720 x 1536, 2560 x 2048, 2800 x 2100,
3320 x 2100, 3200 x 2400, 3840 x 2400...etc



VWBOX-E122

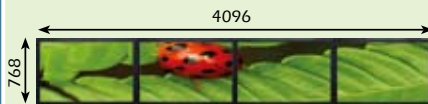


Full-Screen Display on the 2x2 video wall

Ultra High Resolution

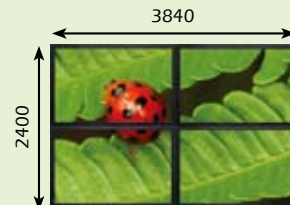
VWBOX-114

- 1 input with 4 outputs (4x1)
- Input: Max. 4096 x 768
- Output: Max. 4096 x 768



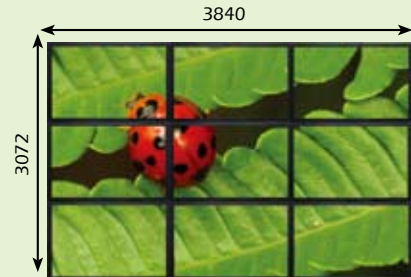
VWBOX-122A

- 1 input with 4 output (2x2)
- Input: Max. 3840 x 2400
- Output: Max. 3840 x 2400



VWBOX-133A

- 1 input with 9 output (3x3)
- Input: Max. 3840 x 3072 (5:4) / Max. 4080 x 2304 (16:9)
- Output: Max. 3840 x 3072 (5:4) / Max. 4080 x 2304 (16:9)



Input Content Source



PC & 1 graphic card



STEP 1: PC read resolution from VWBOX's EDID information via DDC interface on DVI port



VWBOX-133A

Single-link DVI-D



High-Resolution Image on the 3x3 Video Wall

STEP 2: User sets up the matching proper resolution on PC's graphic card based on VWBOX's EDID information



DVI/HDMI Converter

Dual-link DVI is required for high-resolution images (pixel clock > 165Mhz).
The optional DVI/HDMI connector transfers DVI signal into HDMI signal (without audio function) easily.

How to Identify the Right Connector for IEI VWBOX Installation?

Image Input (PC to VWBOX)	Yes (for VWBOX-114/122A/133A)	No	No	Yes (for VWBOX-E122/E133)
Image Output (VWBOX to Monitor)	No	No	Yes	No

VW-DEMOKIT

Modularized Video Wall Development Cart



4x1 Content Display Zone

Perfect for landscape images and flash

Optional Speakers

Enhanced audio for gaming and entertainment

P/N: :76000-JY3033

Specifications: 2.1 channel multi-media speakers, 3-watt stereo speakers and 10-watt sub-woofer, 110V AC input

4x4 Content Display Zone

-Best suited for displaying images, video files and webpages

-Flexible selection of 2x2 /3x3 display content when connecting different IEI video boxes

-Twenty 15.6" LCD monitors with 1366 x 768 resolution, suitable for general TV playback

Multi-Layer Working Tables

(* Video boxes and input devices are not included)

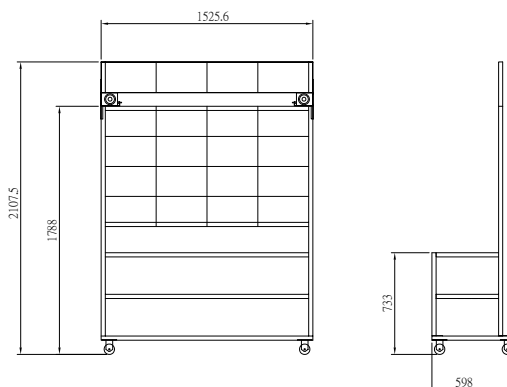
- Layer 1: IEI video wall controllers

- Layer 2 : Input devices

- Layer 3 : Product catalogues for demonstration purposes



Dimensions



5 Reasons to Get the Demonstration Kit

► Integrated Multi-Purpose Cart for Easy Content Development

The IEI video box demonstration kit is built with twenty 15.6" LCD monitors, with a resolution of 1366 x 768 per monitor. The demonstration kit provides engineers with a content design platform. Real-time display of content on multiple monitors allows instant feedback and quicker design times.



◀ Quick Installation

The design of the demonstration kit allows quick installation, and the design allows all the cables to be tucked neatly away into the frame.



◀ Designed for Mobility

The demonstration kit comes with four wheels so it can be moved around easily for customer demonstrations. The cables are also tucked away for even easier movement.

► Suitable for Designing any Video Wall Setup

The video wall demonstration kit supports any video wall combination that can fit in the 4x4 monitor setup. The video display can be altered by changing the connected video boxes and connecting them to different monitors.



◀ Multiple Shelves for Hassle-Free Movement

Three shelves give plenty of space for all equipment necessary for product demonstration. The top shelf is for the video boxes. The middle shelf layer is for any input devices or peripherals, like digital signage players, a PC or gaming console. The bottom layer is for product catalogues or other design tools.



Video Wall Demonstration Kit Packages

The digital signage package includes a management server, a digital signage player and content creation software. Combining the digital signage equipment with the video wall demonstration kit, designing customized content for video walls is a breeze.



Recommend Package for VW-DEMOKIT

Item	Packing List
COMBO 1	* VWBOX-122A-R10 x 1 pcs * VWBOX-E122/DVI-R10 x 4 pcs * VWBOX-114-R10 x 1 pcs * 7F000-WFPX9600GTSFANPIPE x 1 pcs * ISIGNAGER-1000-Q354/E8400/2GB/320G-R10 x 1 pcs * IS-ADMIN-BOX-P651/DESKTOP/BASIC-R10 x 1 pcs
COMBO 2	* VWBOX-E122/DVI-R10 x 5 pcs * VWBOX-114-R10 x 1 pcs * 7F000-WFPX9600GTSFANPIPE x 1 pcs * ISIGNAGER-1000-Q354/E8400/2GB/320G-R10 x 1 pcs * IS-ADMIN-BOX-P651/DESKTOP/BASIC-R10 x 1 pcs



Ordering Information

Item	Description	Packing List
VW-DEMOKIT	Video Wall demo kit, including 20pcs (4x4 plus 1x4) 15.6" LCD monitors	* 15.6" Panel x 20 pcs * Single-Link DVI Cable x 20 pcs * Video Wall Demo Cart (Metal) x 1 set



Options

Item	Description
VWBOX-E122/DVI-R10	Up to 1920 x 1200 input resolution , 2 by 2 Video Wall Control BOX, 1 x DVI Input, 4 x DVI Output
VWBOX-E133-R10	Up to 1920 x 1200 input resolution , 3 by 3 Video Wall Control BOX, 1 x DVI Input, 9 x DVI Output
VWBOX-122A-R10	Up to 3840 x 2400 input resolution, 2 by 2 Video Wall Control BOX, 1 x DVI Input, 4 x DVI Output
VWBOX-133A-R10	Up to 3840 x 3072 input resolution, 3 by 3 Video Wall Control BOX, 1 x DVI Input, 9 x DVI Output
VWBOX-114-R10	Up to 4096 x 768 input resolution, 4 by 1 Video Wall Control BOX, 1 x DVI Input, 4 x DVI Output
7F000-WFPX9600GTSFANPIPE	VGA Card, nVidia Geforce 9600GT PCIe x 16 Graphic card, 512MB, Dula-Link DVI x 2, RoHS
ISIGNAGER-1000-Q354/E8400/2GB/320G-R10	X86 Digital Signage Player with Intel® Core™ 2 Duo 3.0GHz/ 6MB L2 cache Processor E8400, 2GB DDR2 memory, 4GB CF card with built-in Windows Embedded XP Standard OS, 3.5" SATA HDD 320G,built-in 802.11 b/g wireless LAN, Black color, RoHS
IS-ADMIN-BOX-P651/DESKTOP/BASIC-R10	iSignager AdMinistrator V4.X with Embedded System Intel® Pentium® 4 3.4GHz/ 2MB L2 cache Processor 651, 1GB DDR2 memory, built-in 2.5" HDD 160G, with Windows Embedded XP Pro OS, with CD & license for 10 players, Silver color, RoHS
76000-JY3033	2.1 channel multi-media speakers, 3-watt stereo speakers and 10-watt sub-woofer, 110V AC input
32000-128100-RS	1.5m RCA speaker extension cable (Remark : Please order 2pcs x extension cables for 2 speakers)

★ Graphic Card Compatibility List

The video wall controller requires cost-effective consumer graphic cards with dual-link DVI capabilities. Graphic cards need to meet or exceed the specifications shown on the right.

Through easy graphic card set-up process, the video wall can be rotated from landscape monitor mode to portrait monitor mode. Just 3 steps, rotate the video wall image easily and quickly!

nVIDIA GeForce 8 Series		8800GT, 8600GT, 8500GT, 8400GS.. etc.
nVIDIA GeForce 9 Series		9800GTX, 9600GT, 9500GT, 9400GT..etc.
ATI Radeon HD 3800 Series		3870, 3850, 3650, 3470..etc.
ATI Radeon HD 4600 Series		4670, 4650..etc

★ Easy Graphic Card Set Up Process

STEP1 Connect Your Video Wall To The IEI VWBOX

-According to the final image, set up the monitors in sequence

*Remark: The number is the DVI output port number on VWBOX for 90° clockwise rotation video wall setup, and the number in () is for 90° counterclockwise rotation. The rotation may vary depending on the support of graphic card & its driver.



VWBOX-122A

Portrait* (2x2)

3 (2)	1 (4)
4 (1)	2 (3)

Landscape (2x2)

1	2
3	4



VWBOX-114

Landscape (3x1)

1	2	3
---	---	---

Landscape (4x1)

1	2	3	4
---	---	---	---

Portrait* (1x3) Portrait* (1x4)

1 (3)	1 (4)
2 (2)	2 (3)
3 (1)	3 (2)
	4 (1)

Landscape (3x3)

1	2	3
4	5	6
7	8	9

Portrait* (3x3)

7 (3)	4 (6)	1 (9)
8 (2)	5 (5)	2 (8)
9 (1)	6 (4)	3 (7)

VWBOX-133A

Landscape (2x3)

1	2
4	5
7	8

Portrait* (3x2)

7 (2)	4 (5)	1 (8)
8 (1)	5 (4)	2 (7)

Landscape (3x2)

1	2	3
4	5	6

Portrait* (2x3)

4 (3)	1 (6)
5 (2)	2 (5)
6 (1)	3 (4)

STEP2 Set Up Graphic Card- Resolution

-According to the image input, set up the resolution

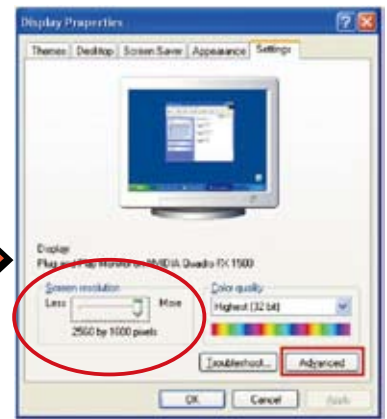
Important !!



Go to Windows Desktop for windows resolution setting and select "Advanced"



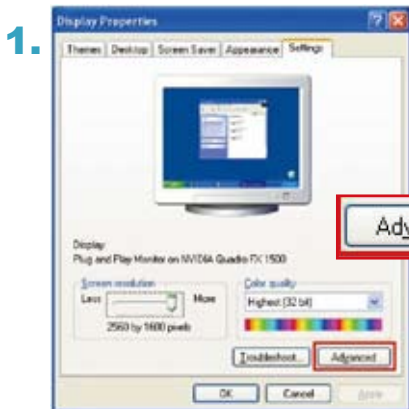
Select the "Monitor" Tab and make sure the check box of "Hide modes that this monitor cannot display" is unchecked



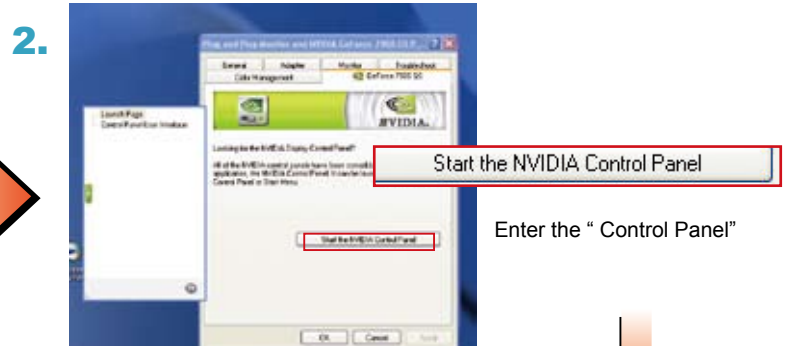
Go back to the resolution setting and there should be 2560 x 2048 resolution option available in "Screen resolution".

STEP3 Set Up Graphic Card- Rotation (For Portrait Video Wall Set Up)

-Set up the rotation (depending on clockwise/ counterclockwise video wall set up in step 1) & view the final image



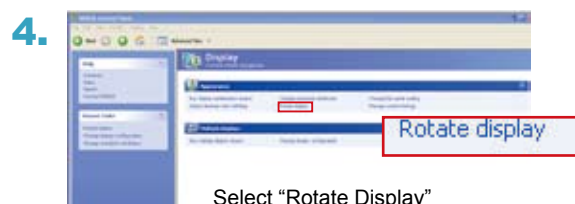
Go back to the resolution setting and select "Advanced"



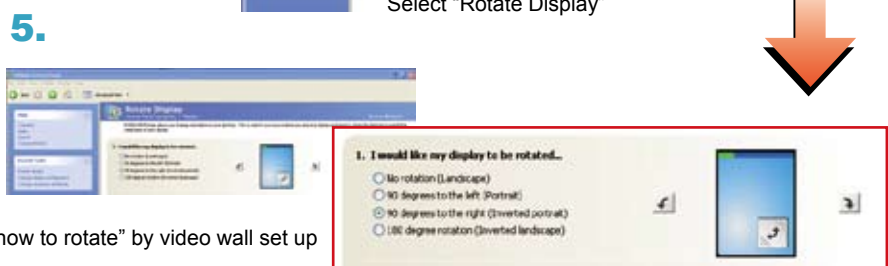
Enter the "Control Panel"



Select "Display"



Select "Rotate Display"

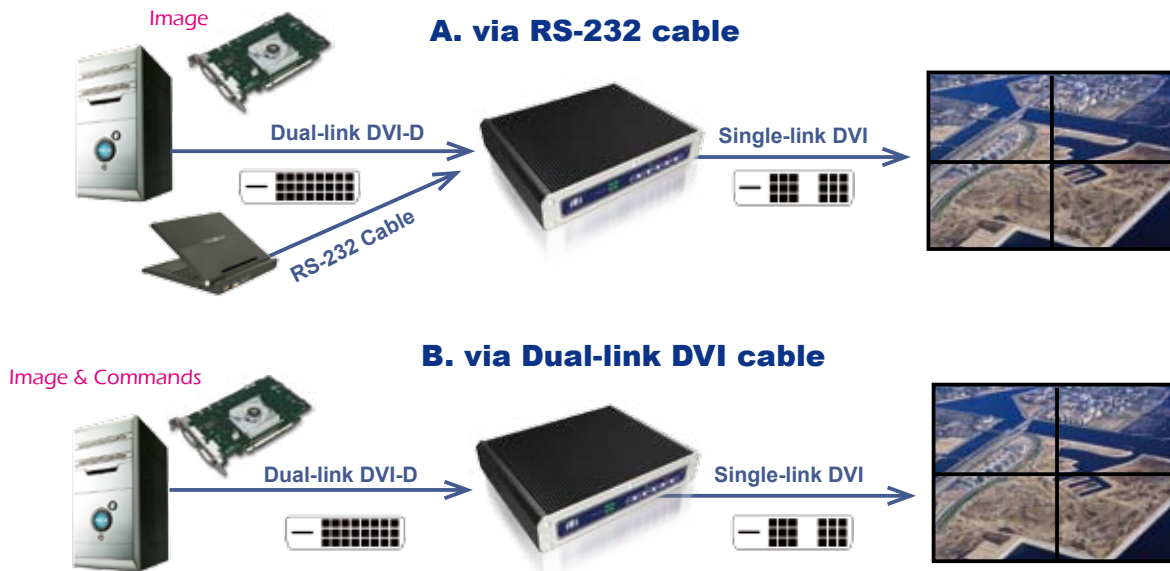


View the Final Image

Choose "how to rotate" by video wall set up

Remote Control Advantages

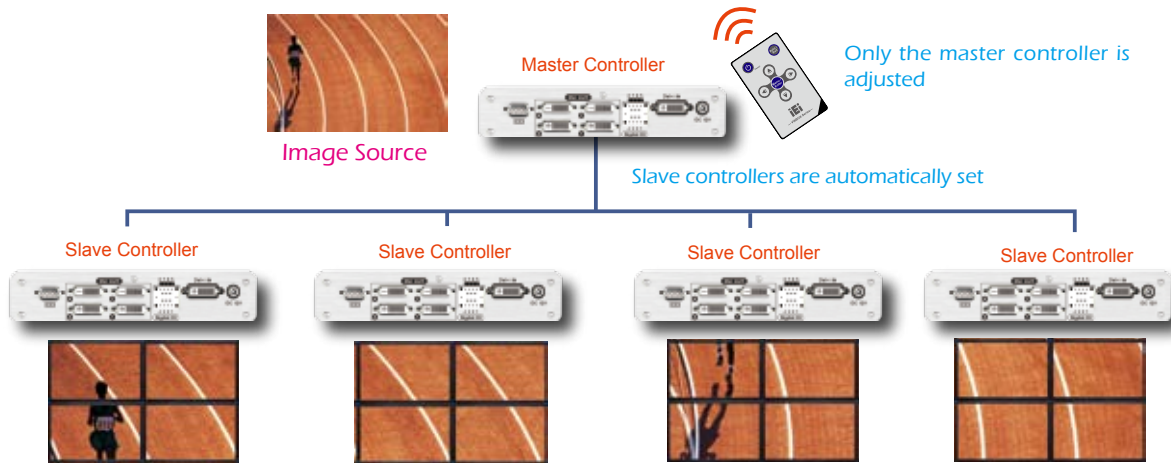
IEI's VWBOX controller allows remote control via RS-232 or DVI Cable for your large-screen video wall application, allowing easy set up and content management. IEI offers RS-232 command list for users to customize or integrate their own software program.



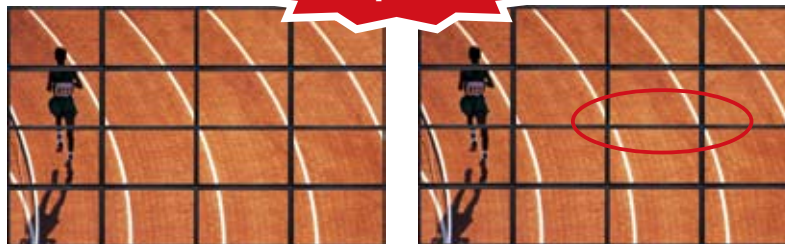
Bezel Masking Setting - IEI Unique GeniMASK™ Technology



GeniMASK™ adjusts the mask settings of all the video box controllers. Adjusting each video box individually is time-consuming, but with GeniMASK™ technology, and the included remote control, they can all be adjusted as easily as changing channels on a TV. No need for separate adjustments, just set once, and it's done.



Comparison



With IEI GeniMASK™

Without IEI GeniMASK™

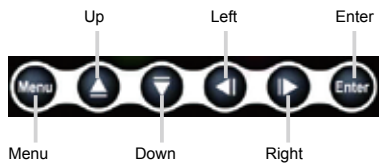
GeniMASK™ Adjustment

IEI provides three utilities to adjust the mask setting. Turn on the "Mask Control" and set up the "Mask Value".

1. By IR Remote Control



2. By Hardware OSD Keypad



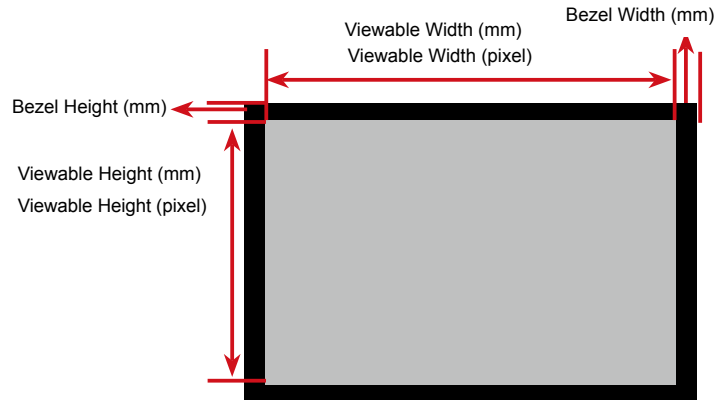
3. By Smart Software OSD (via DDC/RS-232 interface)



For VWBOX-E122/E133



For VWBOX-114/122A/133A

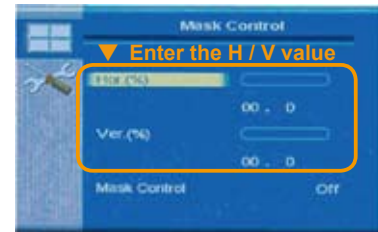


Type 1: Set Up the H/V Mask Value (for VWBOX-E122 /E133 Series)

Calculate the H/V Mask Value

$$\text{Value of H} = \frac{\text{Bezel Width (mm)}}{\text{Viewable Width (mm)}} \times N^*$$

$$\text{Value of V} = \frac{\text{Bezel Height (mm)}}{\text{Viewable Height (mm)}} \times N^*$$



OSD menu for VWBOX-E122/E133

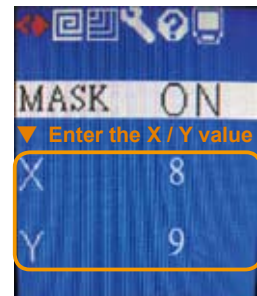
*N (N=100/√Total Panels) is automatically set by the VWBOX based on number of panels connected

Type 2: Set Up the X/Y Mask Value (for VWBOX-114/122A/133A Series)

Calculate the X/Y Mask Setting

$$\text{Value of X} = \frac{\text{Bezel Width (mm)}}{\text{Viewable Width (mm)}} \times \frac{\text{Viewable Width (pixel)}}{4}$$

$$\text{Value of Y} = \frac{\text{Bezel Height (mm)}}{\text{Viewable Height (mm)}} \times \frac{\text{Viewable Height (pixel)}}{4}$$

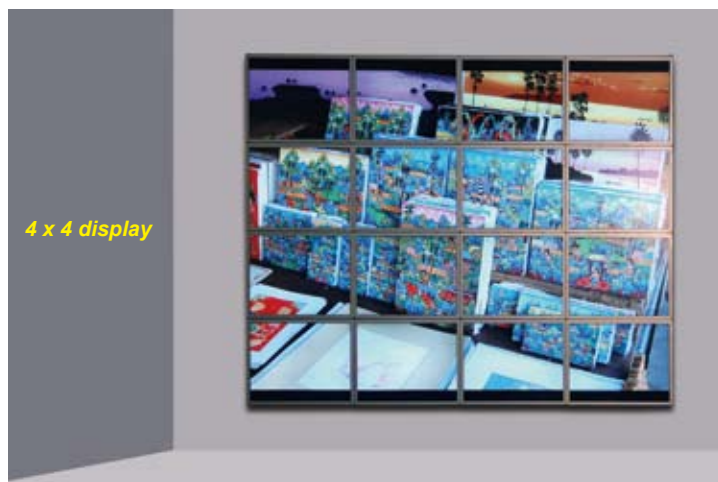
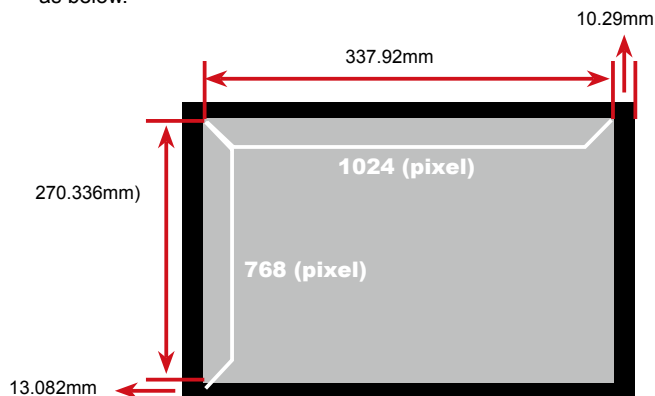


OSD menu for VWBOX-114/122A/133A



Examples: 16-Panel (4x4) Video Wall

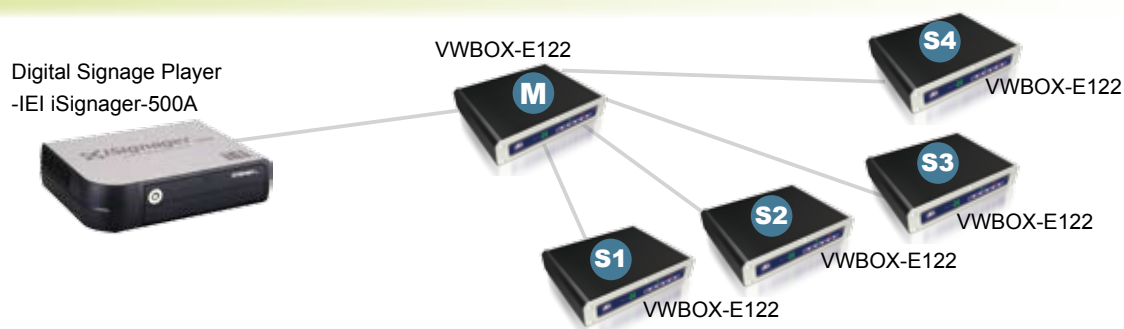
Let's see two examples for the connection between IEI VWBOX series for 16-panel video wall. The video wall is built-up by 16pcs of 17" LCD. The LCD physical dimension & resolution is as below.



Example 1:

Master Controller: VWBOX-E122

Slave Controllers: 4 x VWBOX-E122



STEP1 Select Mask On



STEP2 Calculate & Enter the Mask Value

Set only once on the master controller and the slave controllers are automatically adjusted

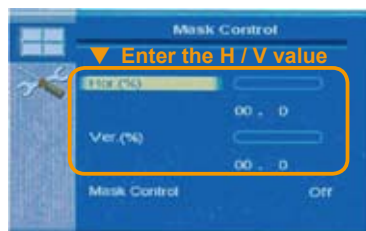
For Master Controller

$$\text{Value of H} = \frac{10.29}{337.92} \times 25^* = 0.8$$

(Player M)

$$\text{Value of V} = \frac{13.082}{270.336} \times 25^* = 1.2$$

(Player M)



GeniMask™

~ No need to set mask on S1-S4 ~

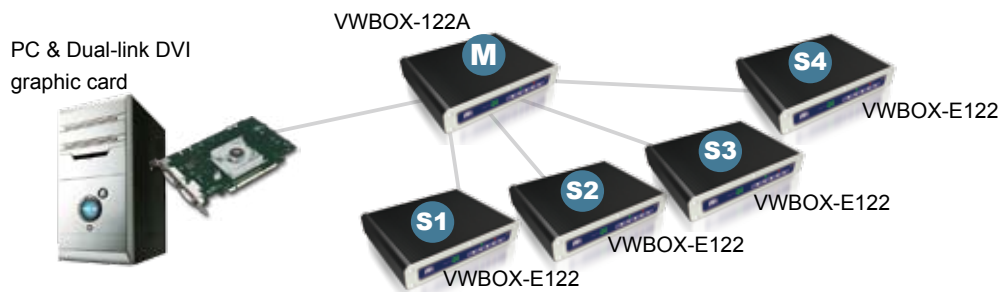
*25=100 / $\sqrt{16 \text{ (Panels)}}$ is automatically set by the VWBOX based on number of panels connected

STEP3 Mask Setting is Complete

Example 2:

Master Controller: VWBOX-122A

Slave Controllers: 4 x VWBOX-E122



STEP1 Select Mask On / Off



STEP2 Calculate & Enter the Mask Value

(1) Set only once on the master controller & choose "LNK On".

The slave controllers are automatically adjusted with the master controller.



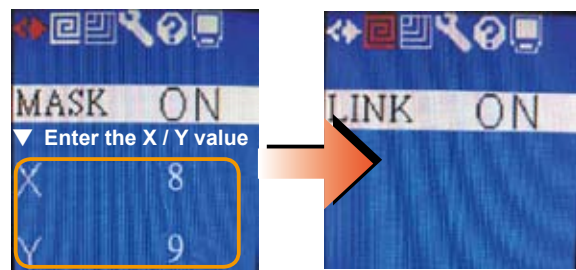
For Master Controller

$$\text{Value of X} = \frac{10.29}{337.92} \times \frac{1024}{4} = 8$$

(Player M)

$$\text{Value of Y} = \frac{13.082}{270.336} \times \frac{768}{4} = 9$$

(Player M)



~ No need to set mask on S1-S4 ~

(2) Set up the master & slave controllers separately according to various display images by choosing "LNK OFF"

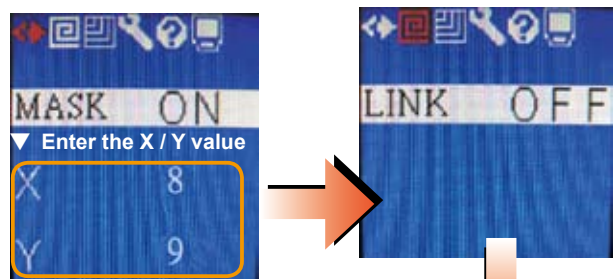
For Master Controller

$$\text{Value of X} = \frac{10.29}{337.92} \times \frac{1024}{4} = 8$$

(Player M)

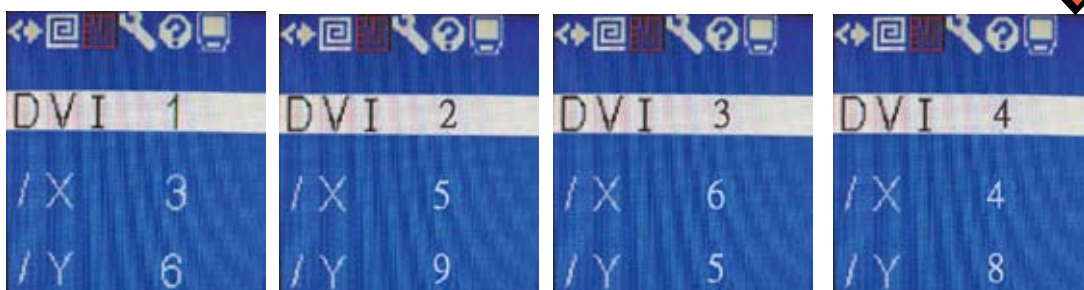
$$\text{Value of Y} = \frac{13.082}{270.336} \times \frac{768}{4} = 9$$

(Player M)



For Slave Controllers

Set up mask value separately from DVI output 1 to DVI output 4



STEP3 Mask Setting is Complete



Use the VWBOX DDC Command for Your Software Design

IEI provides software OSD customization utility, including **DDC Command** and **SDK**, bringing easier software development advantage for users. Customers can easily create the software to control the video wall settings, including "power mode control", "GPIO control", "mask setting", "OSD customization" and "display resolution settings". The customized software facilitates the large-scale video wall set up and allows remote control management through a central computer.

• Example of DDC Command List for Customized Software Programming

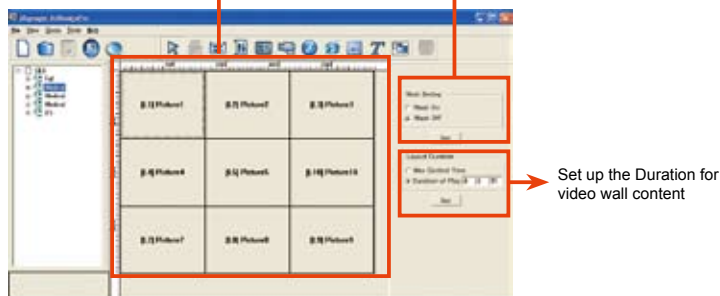
Model Name	Type	VCP opcode	Opcode Names	High Byte	Low Byte (*1)	Description
VWBOX-E122 / E133	R/W	B0h	Display Resolution	X	0~6	set/get value 0:1024x768, 1:1360x768, 2:1280x1024, 3:1400x1050, 4:1680x1050, 5:1600x1200, 6:1920x1200
	R/W	B1h	Display Mode	X	0~6	set/get value 0:1x1, 1:1x2, 2:2x2, 3:mode1, 4:mode2, 5:mode3, 6:mode4
	R/W	B2h	Mask Mode	Bit 8-14: 0~100 Bit 15: 0~1	Bit 0-6: 0~100	set/get value H percent : high byte, V percent : low byte ,Mask control : bit 15 0:off 1:on
	R/W	B3h	GPIO Mode	0~15	0~15	set/get value GPI status :high byte, GPO status :low byte
	W	fbh	Identify Monitors(show ID)	X	0~8	Low byte : ID number
VWBOX-122A	R/W	0xB2	Border Control	0~4	0~7	HiBYTE 0: Parent VWBOX , 1:DVI Child 1, 2: DVI Child 2, 3: DVI Child 3, 4: DVI Child 4 LowBYTE Set VWBOX Border Control:0=OFF, 1=ON, 2=M R, 3=M L, 4=MUL, 5=MUR, 6=MLL, 7=MLR (Note:M R,M L,MUL,MUR,MLL,MLR apply only when VWBOX are Sync connected using RCA cables)
	R/W	0xE9	Border X	0~4	0~16	HiBYTE same as 0xb2 ,LowBYTE Set VWBOX border X(see Figure1)
	R/W	0xEA	Border Y	0~4	0~12	HiBYTE same as 0xb2 ,LowBYTE Set VWBOX border Y
	R/W	0xB0	Output Display Resolution	X	0~11	HiBYTE Undefined LowBYTE Change Output Display Resolution 0: 640x480, 1: 848x480, 2: 1024x768, 3:1280*720, 4:1280x*800, 5:1280x960, 6:1280x1024, 7: 1360x768, 8: 1696x960, 9: 1920x1080, 10:1920x1200, 11:1920x1440 (if changing output display causes EDID change, it will delay 1 sec to be effective)
	R/W	0xB1	Output Display Mode	X	0~1	HiBYTE Undefined,LowBYTE Change Output Display Mode ,0:VideoWall(2X2),1:Split (2X1)
	R/W	0xE8	E122 Output Display Resolution	X	0~6	HiBYTE Undefined ,LowBYTE ,0:1024x768, 1:1360x768, 2:1280x1024, 3:1400x1050, 4 :1680x1050, 5 :1600x1200, 6 :1920x1200
VWBOX-133A	R	0xf8	Model ID	X	0~3	HiBYTE Undefined,LowBYTE Read model ID of video wall (0x02:122A, 0x03:133A)
	R	0xE4	FPGA ver	Version No Hi	Version No Lo	HiBYTE ,LowBYTE Read FPGA version
	R	0xE5	CPLD ver	Version No Hi	Version No Lo	HiBYTE ,LowBYTE Read CPLD version
	R	0xE6	F/W ver	Version No Hi	Version No Lo	HiBYTE ,LowBYTE Read F/W version
	R/W	0xE8	E122 Output Display Resolution	X	0~6	HiBYTE Undefined,LowBYTE,0:1024x768, 1:1360x768, 2:1280x1024, 3:1400x1050, 4 :1680x1050, 5 :1600x1200, 6 :1920x1200
VWBOX-114	R/W	0xB0	Output Display Resolution	X	0~6	HiBYTE Undefined LowBYTE Change Output Display Resolution 0:848*480, 1: 800*600,2: 1024*768,3:1280*800,4:1280*800,5:1280*1024,6:1360*768 (if changing output display causes EDID change, it will delay 1 sec to be effective)
	R/W	0xB1	Output Display Mode	X	0~3	HiBYTE Undefined,LowBYTE Change Output Display Mode, 0:1x4, 1:1X3 2:4x1 3:3x1
	W	0xE1	Connect Message	X	1	HiBYTE Undefined,LowBYTE Connect Message 5 second
	R/W	0xD6	Power Mode	X	0~1	HiBYTE Undefined,LowBYTE Power On/Off, 0:OFF, 1:ON
	R	0xE3	Input Resolution	X	0~17	HiBYTE Undefined,LowBYTE Read input resolution(X,Y axis)(see Resolution Table below.)(ex. Mode 0=1024X768, ...Mode15:2720X1536, Mode16:Invalid, Mode17: No signal)

* Please contact with IEI for the complete DDC command list

Integration between IEI digital signage software "iSignager AdMinistrator" and the DDC command allows the multiple content layout design and dynamic mask setting of each layout. IEI also provides users with the SDK utility which supports easier customized software OSD development, enabling remote control management on the video wall application.

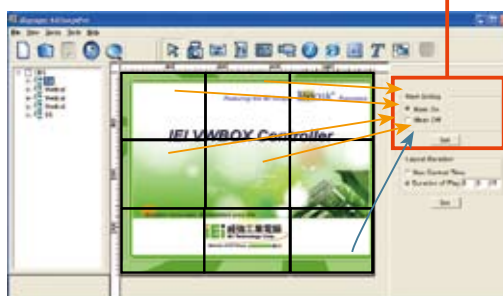
Video Wall Content Design
-Full Screen Single Image
-Allocate the Layout of Multiple Images

Dynamic Mask Control (on/off)
for Separate Video Wall Content



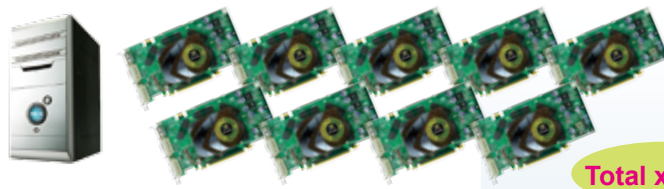
Set Up Mask On for Smooth Background Image

Set Up Mask On/Off Separately for Each Video Wall Content



★ Ultra High Resolution Video Splitter

Traditional Topology for Video Splitter



DVI Output



IEI's Topology for Video Splitter



DVI Input



VWBOX-133A

DVI Output



Assign multiple images to the displays quickly via IEI VWBOX Splitter. Only one PC input, 16 displays with individual content are easily built up. IEI VWBOX brings the advantages for video splitter applications, including

	PC	Graphic Card	Image Input	Combination
IEI Video Wall Solution	Only 1 compact size PC	Only 1 graphic card	One plug between PC and VWBOX via 1 Dual-link DVI cable	Extended
Traditional PC-Based Video Wall Solution	1 large-size PC with multiple expansion slots	Multiple	Complicated processing by multiple graphic boards	Limited

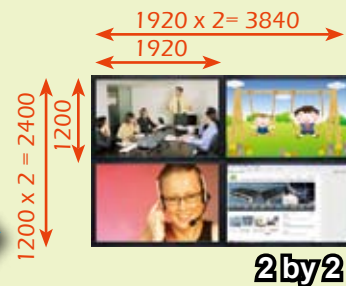
Up to 9.2MP (3840 x 2400) Input



1 Dual-Link DVI Input

VWBOX-122A

4 Single-Link DVI Output



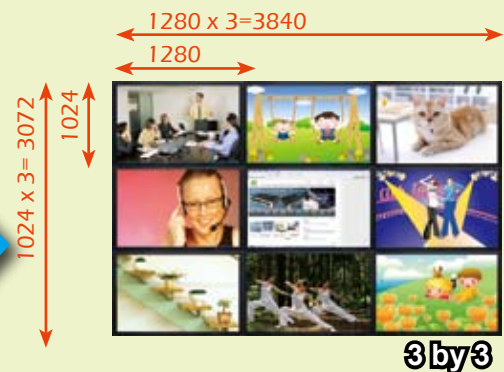
Up to 11MP (3840 x 3072) Input



1 Dual-Link DVI Input

VWBOX-133A

9 Single-Link DVI Output



Up to 3.2MP (4096 x 768) Input



1 Dual-Link DVI Input

VWBOX-114

4 Single-Link DVI Output



For Professional User → Define the display area and positions with your own software

Just follow the positioning for each media layout, professional user can define desired size and position of each media zone freely. Your preferred image or content to be shown on the specific display.



3 x 3 Display

(0, 0) 1 (1023, 767)	(1024, 0) 2 (2047, 767)	(2048, 0) 3 (3071, 767)
(0, 768) 4 (1023, 1535)	(1024, 768) 5 (2047, 1535)	(2048, 768) 6 (3071, 1535)
(0, 1536) 7 (1023, 2303)	(1024, 1536) 8 (2047, 2303)	(2048, 1536) 9 (3071, 2303)

2 x 2 Display

(0, 0) 1 (1919, 1199)	(1920, 0) 2 (3839, 1199)
(0, 1200) 3 (1919, 2399)	(1920, 1200) 4 (3839, 2399)

4 x 1 Display

(0, 0) 1 (1023, 767)	(1024, 0) 2 (2047, 767)	(2048, 0) 3 (3071, 767)	(3072, 0) 4 (4095, 767)
----------------------------	-------------------------------	-------------------------------	-------------------------------

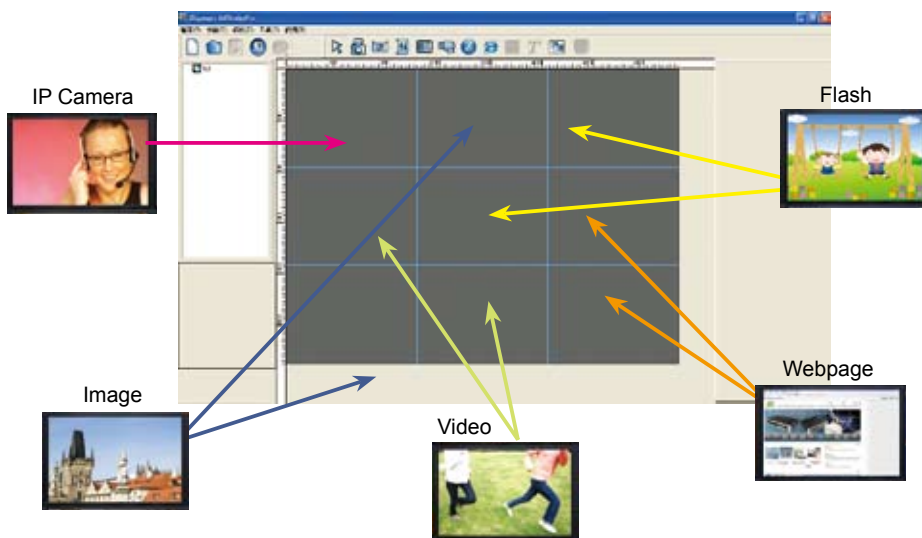
For General User → Design your own Layout via iSignager AdMinistrator V4.x Software

IEI provides iSignager AdMinistrator for easy-design your video wall layout with multiple **IP base input content resources**, including IP camera, image, flash file, video file or webpage. The iSignager AdMinistrator supports 4x1, 2x2, 3x3 or more multiple content zone.

• Outdoor Decoration



• Interior Design



• Public Display



Flexible To Expand Advantage

Connection between IEI VWBOXs expands the video wall architecture easily, bringing cost-effective advantage for large-scale display solution. Follow the below steps and create your large-screen video wall quickly!

STEP1

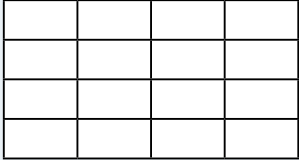
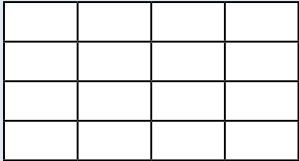
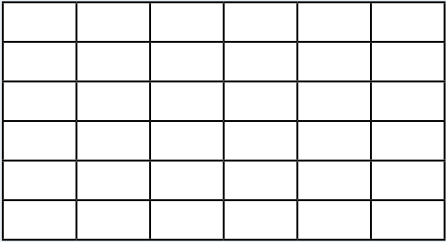
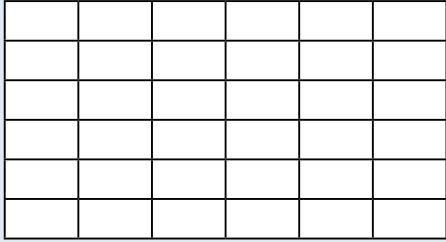
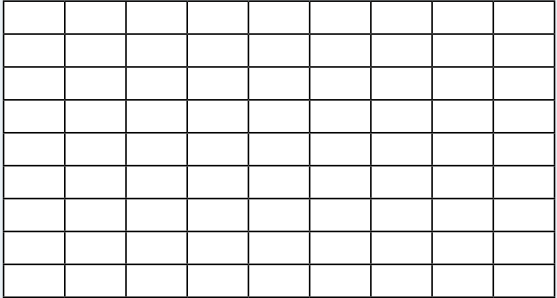
Choose the Video Wall Matrix

STEP2

Choose the Input Resolution

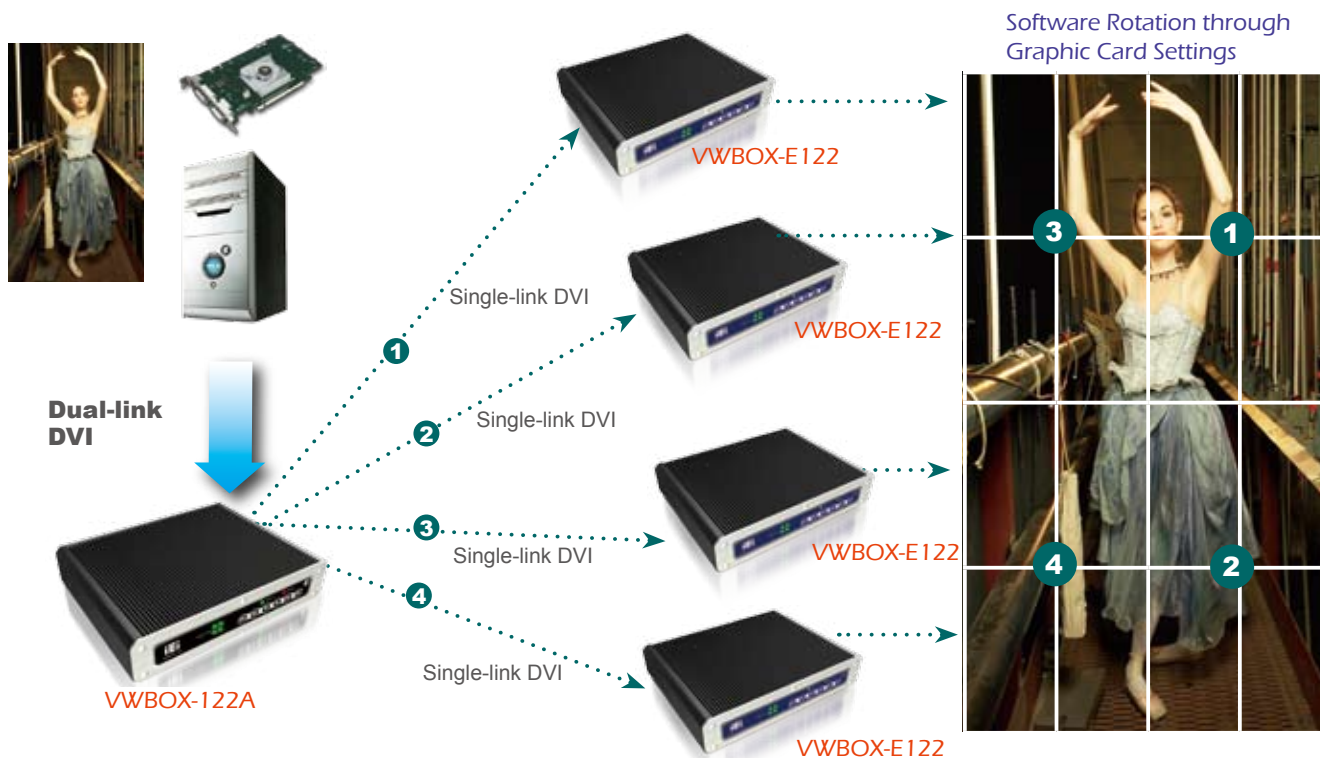
STEP3

Decide the VWBOX Connection

Choose the Video Wall Matrix	Choose the Input Resolution	First Layer	Second Layer
4 x 4 	Max. Image Resolution: 1920 x 1200 Image Input Cable: Single-link DVI-D Image Output Cable: Single-link DVI-D	VWBOX-E122 	VWBOX-E122 x 4 pcs 
4 x 4 	Max. Image Resolution: 3840 x 2400 Image Input Cable: Dual-link DVI-D Image Output Cable: Single-link DVI-D	VWBOX-122A 	VWBOX-E122 x 4 pcs 
6 x 6 	Max. Image Resolution: 1920 x 1200 Image Input Cable: Single-link DVI-D Image Output Cable: Single-link DVI-D	VWBOX-E133 	VWBOX-E122 x 9 pcs  ...Total 9 pcs
6 x 6 	Max. Image Resolution: 3840 x 3072 Image Input Cable: Dual-link DVI-D Image Output Cable: Single-link DVI-D	VWBOX-133A 	VWBOX-E122 x 9 pcs  ...Total 9 pcs
9 x 9 	Max. Image Resolution: 3840 x 3072 Image Input Cable: Dual-link DVI-D Image Output Cable: Single-link DVI-D	VWBOX-133A 	VWBOX-E133 x 9 pcs  ...Total 9 pcs

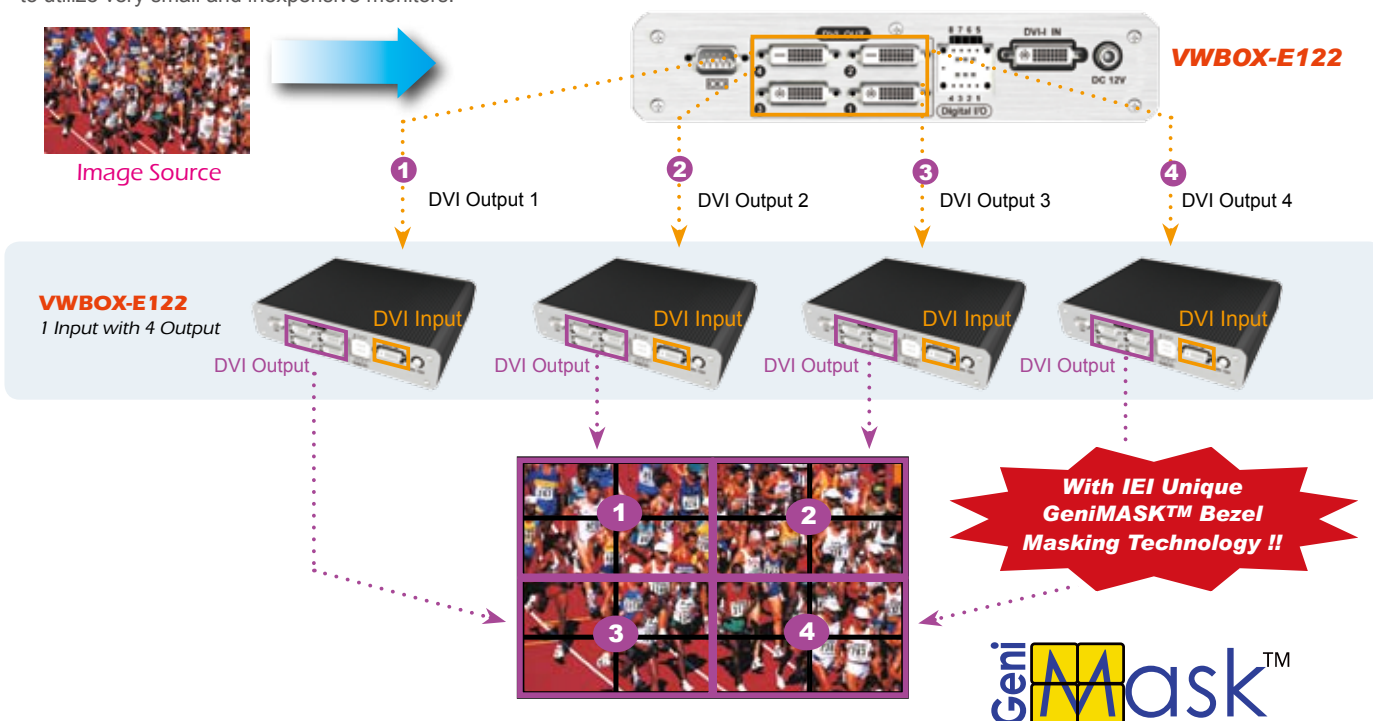
16-Panel Video Wall for Portrait Image Application

The connection between IEI's VWBOX-122A and VWBOX-E122 expands the video wall to 16 screens. With the easy graphic card set up, the video wall can be software rotated into portrait mode, perfect for fashion show and other runaway applications.



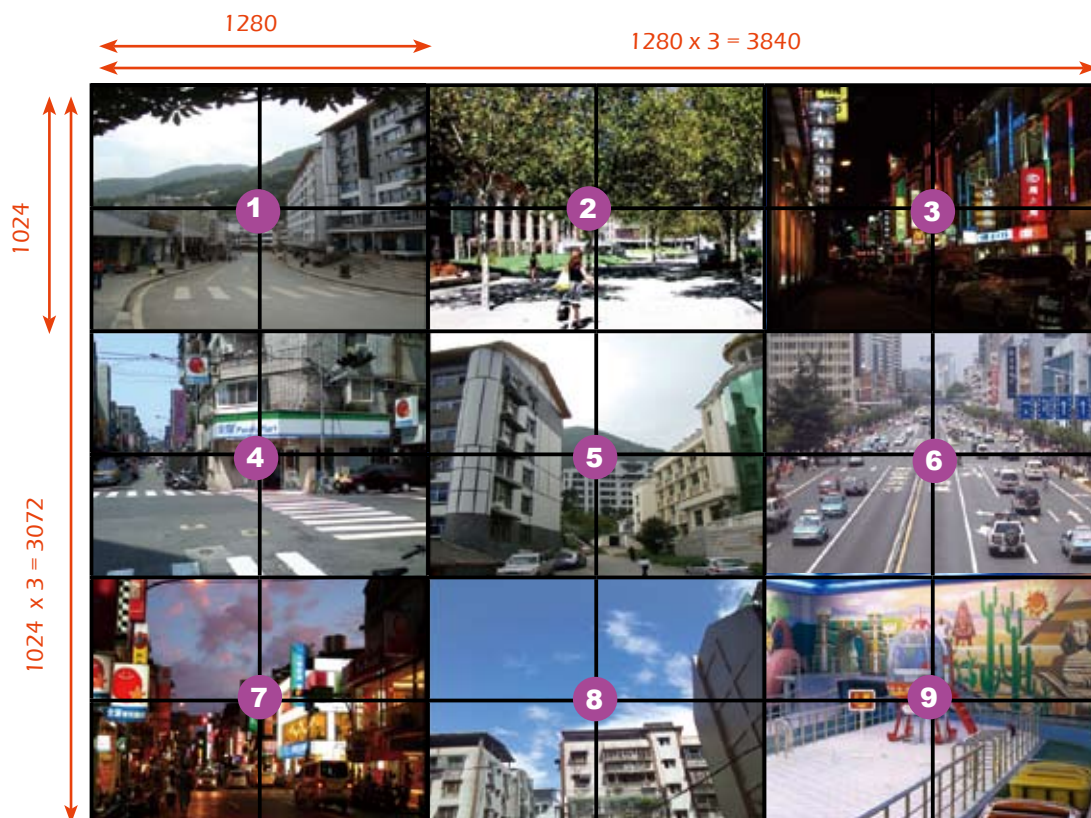
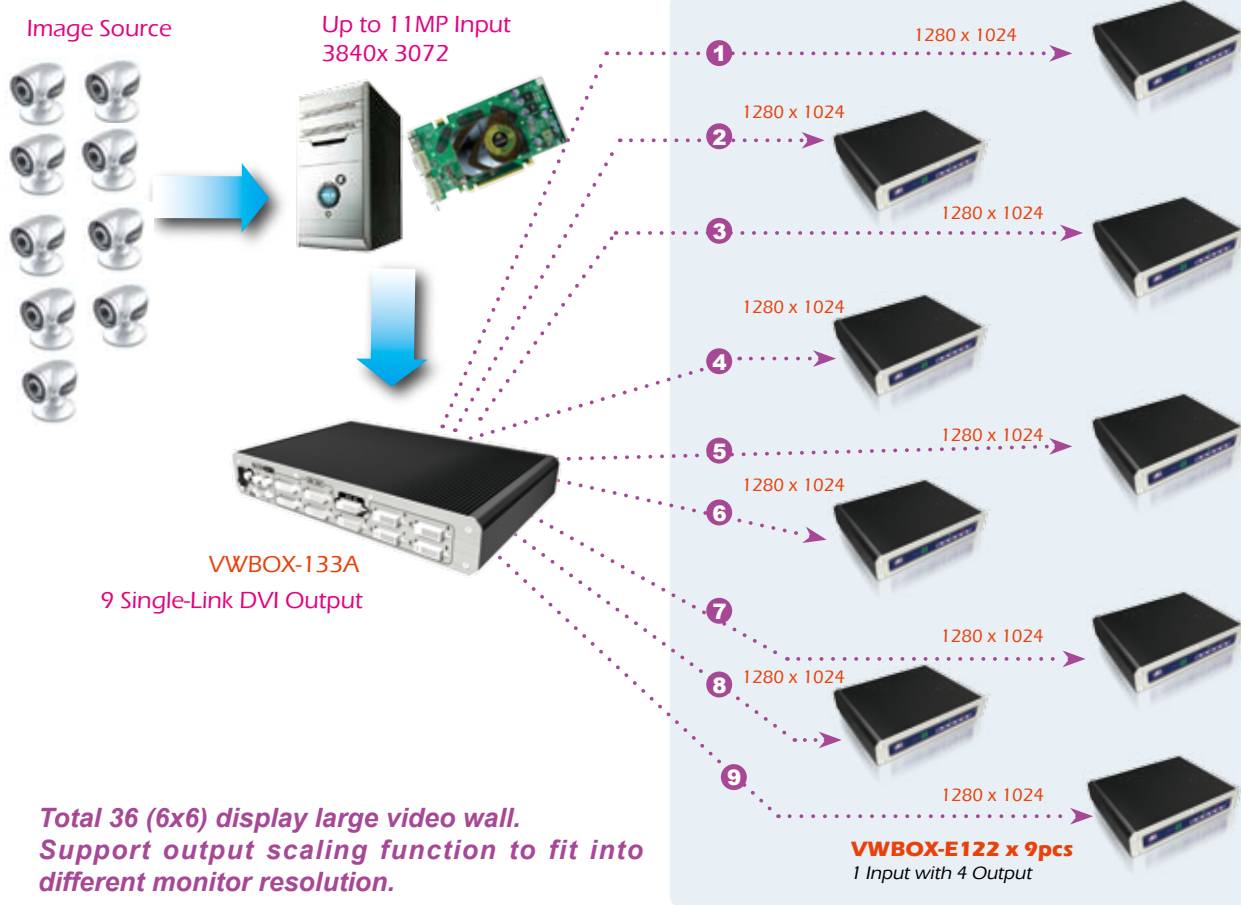
16-Panel Video Wall in Restaurant: Full HD Video Content Support

Combining five VWBOX-E122 video controllers allows the setup of a 16 panel video wall array. Having 16 monitors allows a very large video wall to utilize very small and inexpensive monitors.



36-Panel Video Wall for Security Monitoring Application

Combining one IEI's VWBOX-133A and nine VWBOX-E122 expands the video wall architecture up to 36 screens, bringing high-resolution video content and cost-effective advantage to large-scale display wall for security monitoring application.



VWBOX-E122/E133

Video Wall Controller with Scaling Function

The VWBOX-E122/E133 video wall controller with scaling capability allows the input content scale to the full screen.



VWBOX-E133

- 1 input with 9 output (3x3)
- Up to 1920 x 1200 high-resolution input
- Scaling up to 5760 x 3600 high-resolution output

Features:

- IEI unique GeniMask™ bezel masking technology
- Support up to 1920 x 1200 input content
- Output content is auto-scaling up to 3840 x 2400 or 5760 x 3600 high resolution
- Support multiple display modes, such as full mode, clone mode, etc.
- Allow remote manage the VWBOX via RS-232 cable or DVI cable
- Easy-to-DIY video wall solution



VWBOX-E122

- 1 input with 4 output (2x2)
- Up to 1920 x 1200 high-resolution input
- Scaling up to 3840 x 2400 high-resolution output

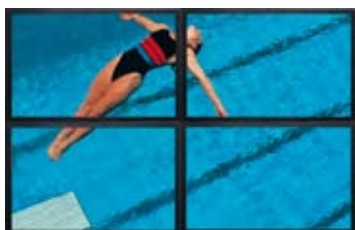


Support Various Display Modes

Full Mode

Image is spread over all the screens to display a large single image

VWBOX-E122 (2x2)



VWBOX-E133 (3x3, 2x3, 3x2)



Clone Mode

Same content on four screens

VWBOX-E122 (1x1)



VWBOX-E133 (1x1)



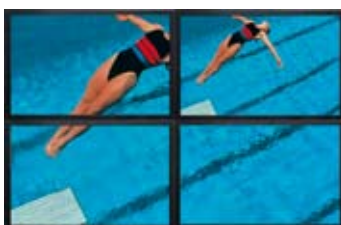
Vertical Replication Mode

Display the same image in rows, for implementing wide video walls

VWBOX-E122 (2x1)



PIP Mode (for VWBOX-E122 Only)



Mode 1

Full image on the left-upper screen

Mode 2

Full image on the right-upper screen

Mode 3

Full image on the left-lower screen

Mode 4

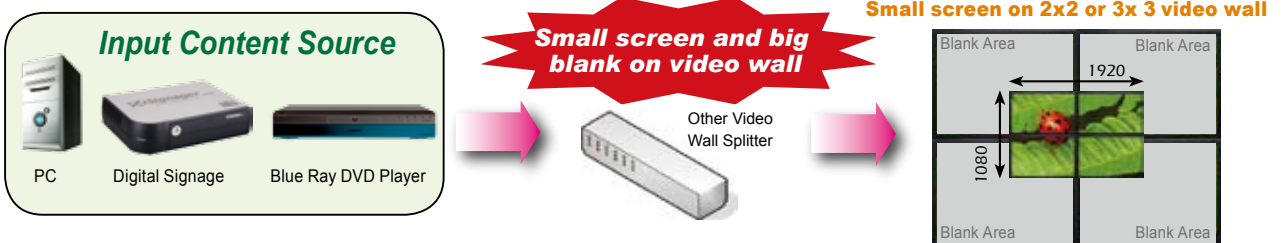
Full image on the right-lower screen

Support HD Content & Scaling Function

IEI VWBOX-E122/E133 with Auto-Scaling Function



Traditional Video Wall Controller without Scaling Function



Flexible Selection on LCD Monitors

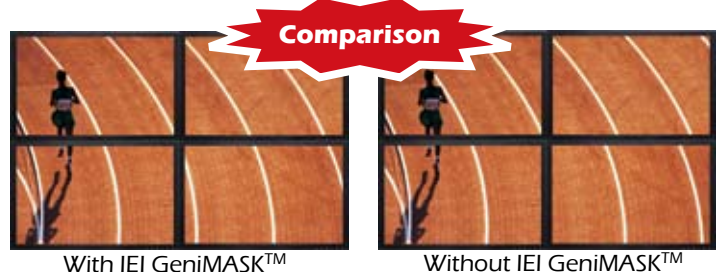
The input resolution of VWBOX-E122 /E133 is up to 1920 x 1200. Various monitor resolution is supported by VWBOX-E122/E133, enabling flexible selection on monitors for different video wall applications.

	Source	Resolution
Input	DVI (Support VGA Input)	800x 600, 1024x 768, 1152x 864, 1280x 768, 1280x 960, 1280x 1024, 1600x 1200, 1680x 1050, 1920x 1200
Output	DVI	1024x768, 1360x768, 1280x1024, 1440 x 900, 1400x 1050, 1680x1050, 1600x1200, 1920x1080, 1920x1200

IEI Unique GeniMASK™ Bezel Masking Technology



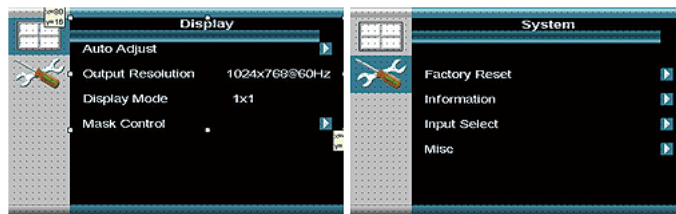
GeniMASK™ sets the bezel mask to compensate for the gaps between monitors in the video wall array. Masking technology gives a contiguous final image, without the gaps unnaturally breaking the image up. These settings are easily adjusted using the included remote control.



IR Remote Control and OSD

The VWBOX-E122/E133 includes an IR remote control for configuring the OSD settings. The OSD adjusts

- Output resolution
- Display mode selection
- Bezel mask adjustment
- Video input source
- Power on/off



IR Remote Control



SmartOSD for Remote Management/ Digital I/O Setting



The SmartOSD remotely manages and controls the VWBOX-E122/E133 via an RS-232 or DDC/CI (DVI cable) interface. The digital I/O settings of the video wall controller can be set through the SmartOSD.



VWBOX-114/122A/133A

Video Wall Controller with High-Resolution Input Support

The high-resolution video controllers enable the maximum image quality by mapping the input video pixels directly to the pixels on the connected output channels. Directly splitting of the input signal results in a much higher quality image compared to resized or adjusted signal.



VWBOX-133A

- 1 input with 9 outputs (3x3)
- Support (3x3) & (3x2) & (2x3) output selection
- Up to 3840 x 3072(5:4) & 4080 x 2304 (16:9) high-resolution input

Features:

- Easy-to-install, flexible combination, cost effective solution
- High-resolution display content input and output
- Non-scaling, pixel-to-pixel mapping advantage
- Single input (Dual-Link DVI) and 4/9 outputs (Single-Link DVI)
- Support various display modes
- IEI unique GeniMask™ bezel masking technology



VWBOX-114

- 1 input with 4 outputs (4x1)
- Support (4x1) & (3x1) output selection
- Up to 4096 x 768 high-resolution input

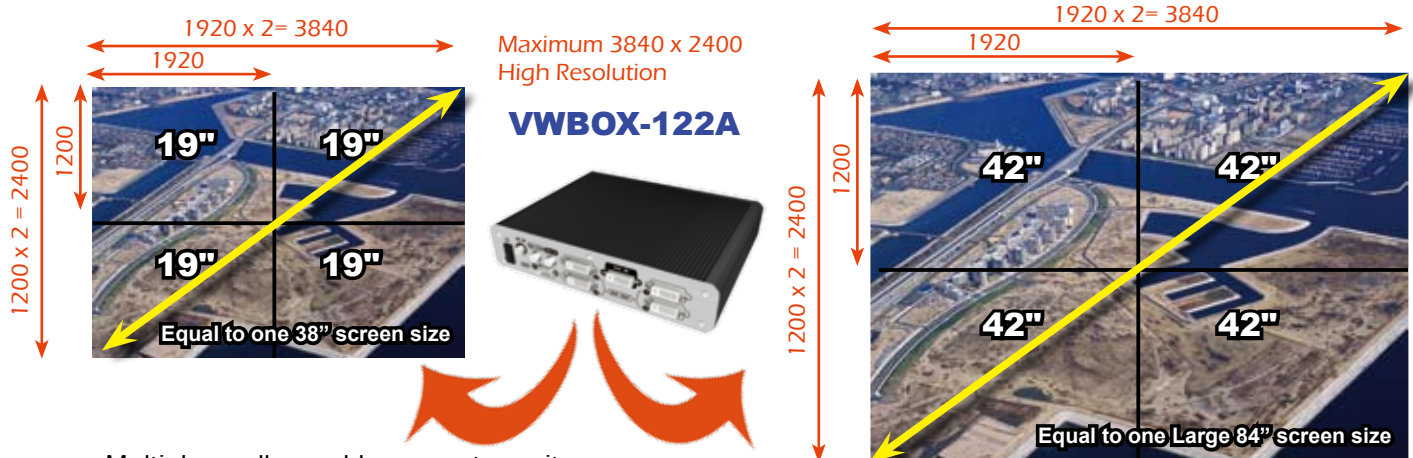


VWBOX-122A

- 1 Input with 4 Output (2x2)
- Up to 3840 x 2400 high-resolution input

Low Cost Large Screen Displays

IEI's pixel-to-pixel mapping function enables the original high-resolution image displays in super large screens without any resolution loss, ensuring the most delicate display images. IEI's video wall controller allows users to flexibly choose various screen sizes for the display solution to leverage the high-resolution advantage and significantly reducing total cost of ownership for large screen display applications.



IEI Unique GeniMASK™ Bezel Masking Technology



GeniMASK™ sets the bezel mask to compensate for the gaps between monitors in the video wall array. Masking technology gives a contiguous final image, without the gaps unnaturally breaking the image up. These settings are easily adjusted using the included remote control.

Comparison



With IEI GeniMASK™



Without IEI GeniMASK™



Support Various Display Modes

Full Mode

-Image is spread over all the screens to display a large single image. Full mode is available for VWBOX-114/122A/133A.

VWBOX-114 (3 x 1)



VWBOX-114 (4 x 1)



VWBOX-122A (2 x 2)



VWBOX-133A (3 x 3)



VWBOX-133A (3 x 2)



VWBOX-133A (2x 3)



Clone Mode

-Same content on four screens. Clone mode is available for VWBOX-122A only.

VWBOX-122A (1 x 1)



Vertical Replication Mode

-Display the same images in rows, for implementing wide video walls. Vertical replication mode is available for VWBOX-122A only.

VWBOX-122A (2 x 1)





Flexible Expansion for High-Resolution Video Wall Content

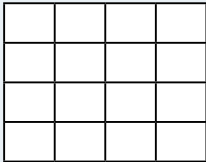
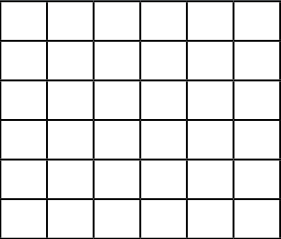
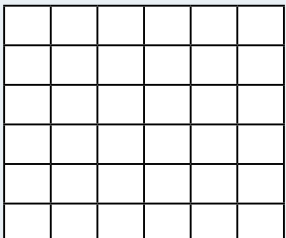
STEP 1: Decide the video wall matrix & the connection for VWBOXs



STEP 2: Set Up the Resolution & Output Frequency for Master Controller

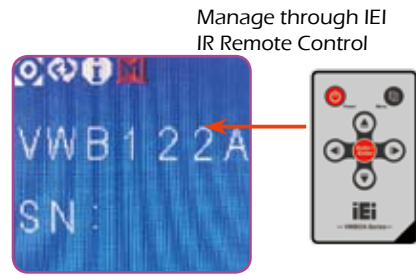
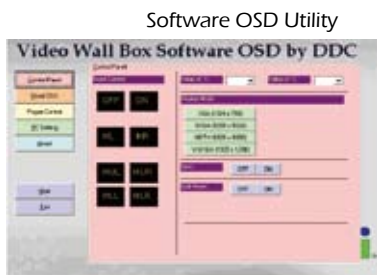


STEP 3: Set Up the Resolution & Output Frequency for Slave Controllers

Video Wall Matrix	Master Controller	Resolution (for Master Controller)	Output Frequency (V:Vertical H:Horizontal)	Slave Controllers	Resolution (for Slave Controllers)	Output Frequency (V:Vertical H:Horizontal)
4 x 4 	VWBOX-122A 	Option 1: Input Resolution: 2560 x 1920 Output Resolution: (to Slave Controllers) (4 x 1280x960)*1 Option 2: Input Resolution: 3392 x 1920 Output Resolution: (to Slave Controllers) (4 x 1696x960)*1	Option 1: V(Hz):68 H(kHz):65.28 Option 2: V(Hz):58 H(kHz):55.58	VWBOX-122A x 4 pcs 	Option 1: Input Resolution: (from Master Controller) 1280 x 960 Output Resolution (4 x 640x480)*1 Option 2: Input Resolution: (from Master Controller) 1696 x 960 Output Resolution: (4 x 848x480)*1	Option 1: V(Hz):72 H(kHz): 36 Option 2: V(Hz):54 H(kHz): 27.92
6 x 6 	VWBOX-122A 	Input Resolution: 3840 x 2880 Output Resolution: (to Slave Controllers) (4 x 1920x1440)*1	V(Hz):68 H(kHz):65.28	VWBOX-133A x 4 pcs 	Input Resolution: (from Master Controller) 1920 x 1440 Output Resolution (9 x 640x480)*1	V(Hz):72 H(kHz):36
6 x 6 	VWBOX-133A 	Input Resolution: 3840 x 2880 Output Resolution: (to Slave Controllers) (9 x 1280x960)*1	V(Hz):68 H(kHz):65.28	VWBOX-122A x 9 pcs  ...Total 9 pcs	Input Resolution: (from Master Controller) 1280 x 960 Output Resolution (4 x 640x480)*1	V(Hz):72 H(kHz):36



Remote Management Advantage



IEI provides "IR Remote Control" and "Software OSD (via DDC/CI interface)" to remotely controls the VWBOX settings. Every video wall controller also comes with an IR remote control for adjusting the OSD functions, such as power on/off, mask setting, output resolution selection and display mode selection, facilitating remote management for video wall solution.



Power On/Off



Mask Setting

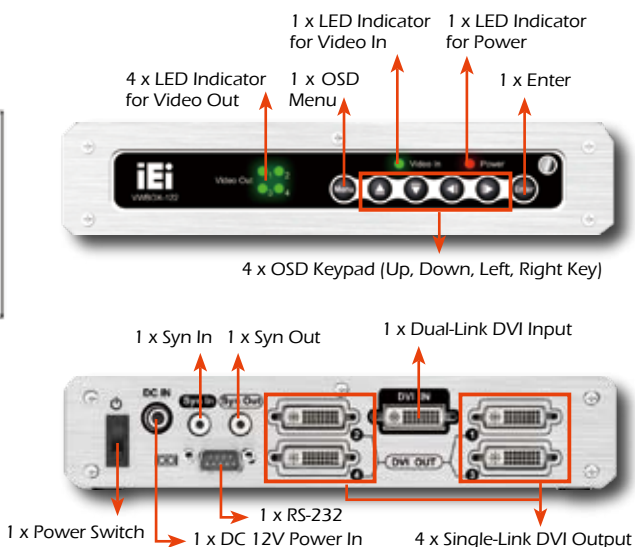
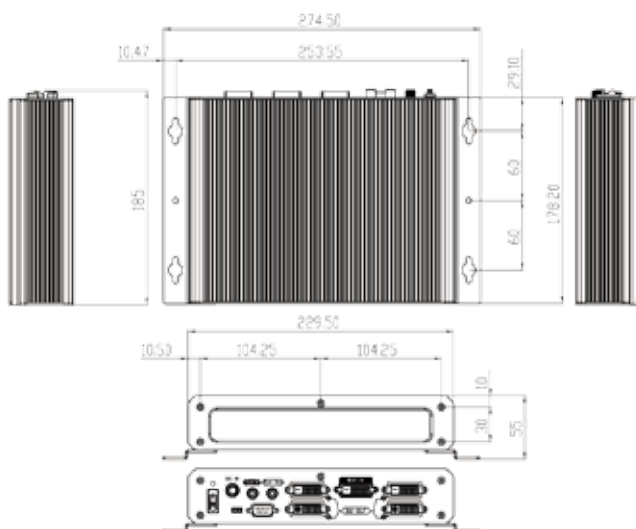


Selection of "Output Resolution" & "Display Mode"

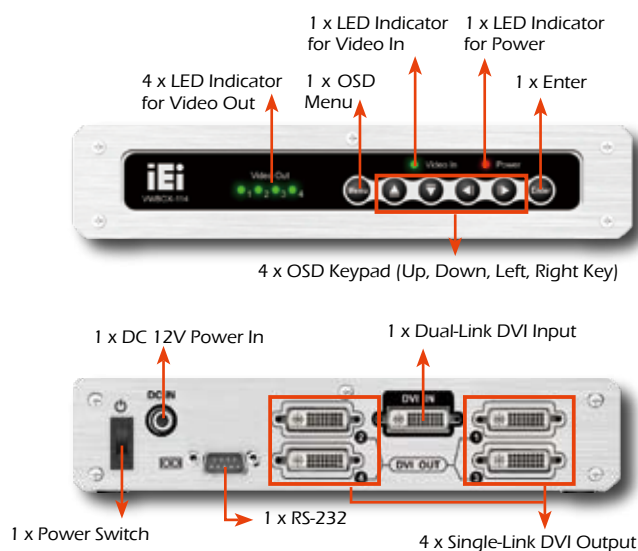
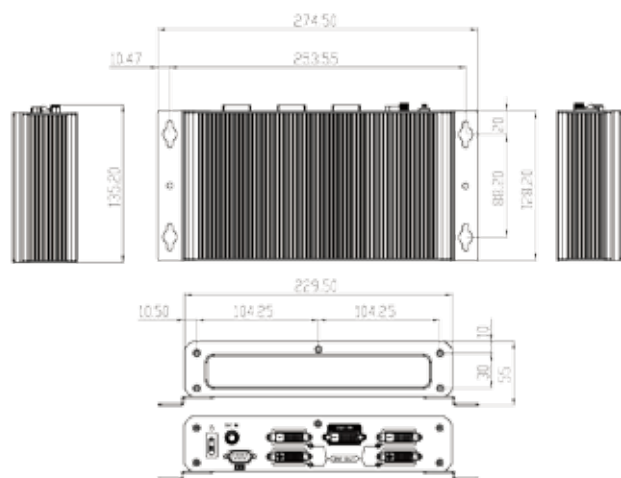


Dimensions

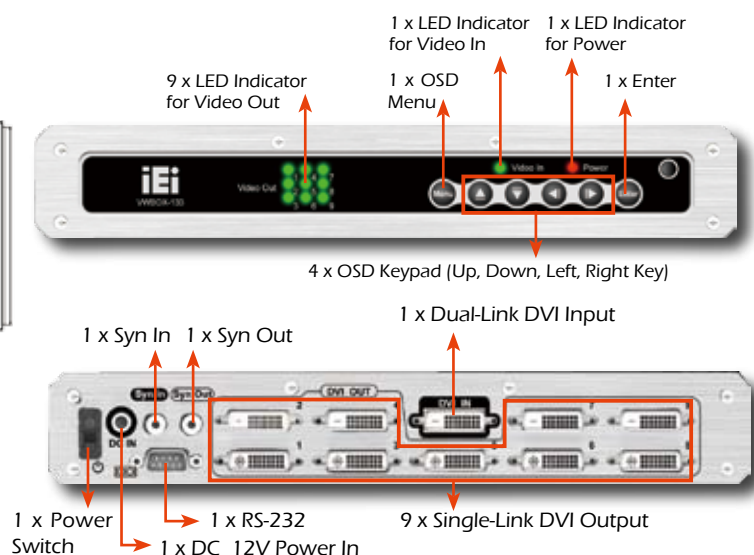
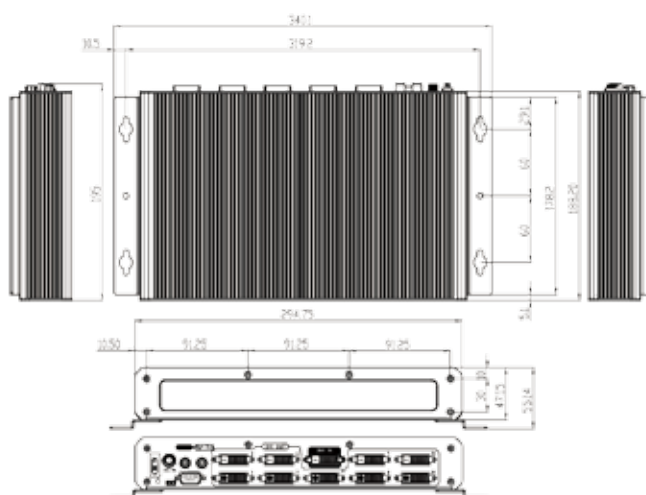
VWBOX-122A



VWBOX-114



VWBOX-133A





Specifications

	VWBOX-114-R10				VWBOX-122A-R10				VWBOX-133A-R10			
Dimensions(mm) (W x D x H)	230 x 130 x 47				230 x 180 x 47				295 x 188 x 47			
Cooling	Fanless				Fanless				Fanless			
Front Panel	LED Light	6 x LED (1x Input, 4x Output, 1x Power)			6 x LED (1x Input, 4x Output, 1x Power)			11 x LED (1x Input, 9x Output, 1 x Power)				
	Keypad	6 Keys			6 Keys			6 Keys				
	IR Receiver	Yes			Yes			Yes				
Rear Panel	Input	1 x DVI dual-link Input			1 x DVI dual-link Input			1 x DVI dual-link Input				
	Output	4 x DVI single-link Output			4 x DVI single-link Output			9 x DVI single-link Output				
	Power Switch	1 x Power (in) with lock			1 x Power (in) with lock			1 x Power (in) with lock				
	RS-232	1 x RS-232			1 x RS-232			1 x RS-232				
	Syn In	N/A			1 x Syn In			1 x Syn In				
	Syn Out	N/A			1 x Syn Out			1 x Syn Out				
Resolution	Input	Output	Output Vertical Frequency (Hz)	Output Horizontal Frequency (kHz)	Input	Output	Output Vertical Frequency (Hz)	Output Horizontal Frequency (kHz)	Input	Output	Output Vertical Frequency (Hz)	Output Horizontal Frequency (kHz)
	Full Mode (4 x 1)				Full Mode (2 x 2)				Full Mode (3 x 3)			
	3392x480	(4x848x480) *1	60	31.02	2048x1536	(4x1024x768) * 1	60	48.36	3072x2304	(9x1024x768) * 1	60	48.36
	3200x600	(4x800x600) *1	60	37.08	2560x2048	(4x1280x1024) * 1	60	63.98	3840x2160	(9x1280x720)*1	66	49.37
	3840x600	(4x960x600) *1	60	36	2560x1440	(4x1280x720)*1	66	49.37	3840x2400	(9x1280x800)*1	58	48.2
	4092x768	(4x1024x768) *1	51	48.36	2560x1600	(4x1280x800)*1	58	48.2	3840x3072	(9x1280x1024)*1	60	63.98
	Full Mode (3 x 1)				2720x1536	(4x1360x768)*1	57	45.32	4080x2304	(9x1360x768)*1	57	45.32
	2544x480	(3x848x480)*1	60	31.02	3840x2160	(4x1920x1080) * 1	50	56.25	Full Mode (2 x 3)			
	2400x600	(3x800x600) *1	60	37.08	3840x2400	(4x1920x1200) * 1	50	61.75	2048x2304	(6x1024x768)*1	60	48.36
	2880x600	(3x960x600)	60	36	Clone Mode (1 x 1)			2560x2400	(6x1280x800)*1	58	48.2	
	3072x768	(3x1024x768)*1	51	48.36	1024x768	(1x1024x768) * 4	60	48.36	2560x3072	(6x1280x1024)*1	60	63.98
					Vertical Replication Mode (2 x 1)				2720x2304	(6x1360x768)*1	57	45.32
					2560x1024	(2x1280x1024) * 2	60	63.98	Full Mode (3 x 2)			
					3840x1080	(2x1920x1080) * 2	50	56.25	3072x1536	(6x1024x768)*1	60	48.36
					3840x1200	(2x1920x1200) * 2	50	61.75	3840x1600	(6x1280x800)*1	58	48.2
									3840x2048	(6x1280x1024)*1	60	63.98
									4080x1536	(6x1360x768)*1	57	45.32
Power Consumption	10W				10W				17W			
Power Supply	Connector	DC Power Jack			DC Power Jack			DC Power Jack				
	Input	90VAC to 264VAC/47Hz to 63Hz			90VAC to 264VAC/47Hz to 63Hz			90VAC to 264VAC/47Hz to 63Hz				
	Output	12V DC			12V DC			12V DC				
OSD Function	1. Output resolution selection 2. Power On/Off				1. Output resolution selection 2. GeniMask bezel masking control 3. Power On/Off 4. Output Sync On/Off				1. Output resolution selection 2. GeniMask bezel masking control 3. Power On/Off 4. Output Sync On/Off			
Temperature	0℃ ~ 40℃				0℃ ~ 40℃				0℃ ~ 40℃			
Safety and Emission	CE, FCC, and CCC				CE, FCC, and CCC				CE, FCC, and CCC			



Packing List

Item	VWBOX-114/122A/133A
Video Wall Box	1
12VDC Power Adapter (P/N:63000-UP0251E12PL59-RS)	1
Power Cord	1
IR Remote Control	1
Dual-link DVI-D Cable (1.8m)	1
Utility CD with User Manual	1
Mounting Bracket	1 set
Screw Kit	1 set



Options

Part No.	Description
32000-115700-RS	Dual-link DVI-D Cable 1.8M
32000-116000-RS	Single-link DVI-D Cable 1.8M
32000-115800-RS	Dual-link DVI-D Cable 5M
32000-114100-RS	Single-link DVI-D Cable 5M
32000-115900-RS	Dual-link DVI-D Cable 10M
32000-114101-RS	Single-link DVI-D Cable 10M
32000-000098-RS	RS-232 Cable 1.8M
33Z01-000012-RS	DVI (Male) to HDMI(Female) converter
33Z01-000013-RS	DVI (Female) to HDMI (Male) converter



Ordering Information

Model Name	Description
VWBOX-114-R10	Up to 4096 x 768 ultra high resolution input video wall controller, 1 Dual-link DVI input, 4 Single-link DVI output (4 x 1), RoHS
VWBOX-122A-R10	Up to 3840 x 2400 ultra high resolution input video wall controller, 1 Dual-link DVI input, 4 Single-link DVI output (2 x 2), RoHS
VWBOX-133A-R10	Up to 3840 x 3072 ultra high resolution input video wall controller, 1 Dual-link DVI input, 9 Single-link DVI output (3 x 3), RoHS

IEI VWBOX Value-Added Product *iSignager-500A* Digital Signage Player



iSignager-500A
Digital Signage Player

VWBOX-E122
Video Wall Controller

iSignager Digital Signage Player creates the amazing content composed by photos, videos and banners while VWBOX-E122 broadcasts the content on the display wall with auto-scaling function. Combining IEI iSignager with VWBOX brings synergy to your video wall display solution. For more information about iSignager Digital Signage Player, please visit www.isignager.com.



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